CRATAEGUS NANANIXONII (ROSACEAE, SER. *INTRICATAE*) A NEW SPECIES OF HAWTHORN FROM EASTERN TEXAS

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ABSTRACT

A new species of *Crataegus*, *C. nananixonii*, is described from Texas and illustrated. The new taxon is a small plant endemic to sand hills near Nacogdoches.

RESUMEN

Se describe y se ilustra una nueva especie de *Crataegus*, *C. nananixonii*, procedente de Texas. El nuevo taxon es una pequeña planta endémica de las colinas arenosas cerca de Nacogdoches.

In preparation for the forthcoming Flora of Texas, this paper describes a new species of *Crataegus* which has been known for a number of years from sand plains near Nacogdoches, Texas. This species cannot be matched with anything in lists of Texas plants (e.g. Hatch et al. 1990, Johnston 1990, Mahler 1988, Nixon 1985, Simpson 1988, Vines 1977) or Louisiana (MacRoberts 1988). In Correll and Johnston's (1970) *Manual of the Vascular Plants of Texas* it would key down unambiguously to *C. uniflora* Muenchh., if the ripe fruit color were known. However, it is very different from that species, as discussed below.

Crataegus nananixonii J.B. Phipps & R.J. O'Kennon, sp. nov. (Fig. 1).

TYPE: TEXAS: NACOGDOCHES CO.: 1 mi N of jct. of FM1087 and Co. Rd. 153, on Co. Rd. 153, 14 Apr 1989, *E.S. Nixon 17430* (HOLOTYPE: ASTC; ISOTYPE: UWO).

Frutex, 1–2 m altus, intricate ramosus; spinae 1–3 cm longae, tenues, rectae vel plus minusve recurvatae, sordide atrocinereae. Folia decidua, petiolata; laminae 1.5–3.5 cm longae, rhombo-ovatae, vadosissime lobatae vel non-lobatae, marginibus nonnihil irregulariter seratis, in juventute sparsim scabro-pubescentes adaxiale, glabrae abaxiale, in maturitate fere omnino glabrae excepte pubescentia adaxiale in venas, glanduloso-maculatae in allis dentes, praecipue proxime, paribus ca. 3 venarum secondariarum, petioli 5–15 mm

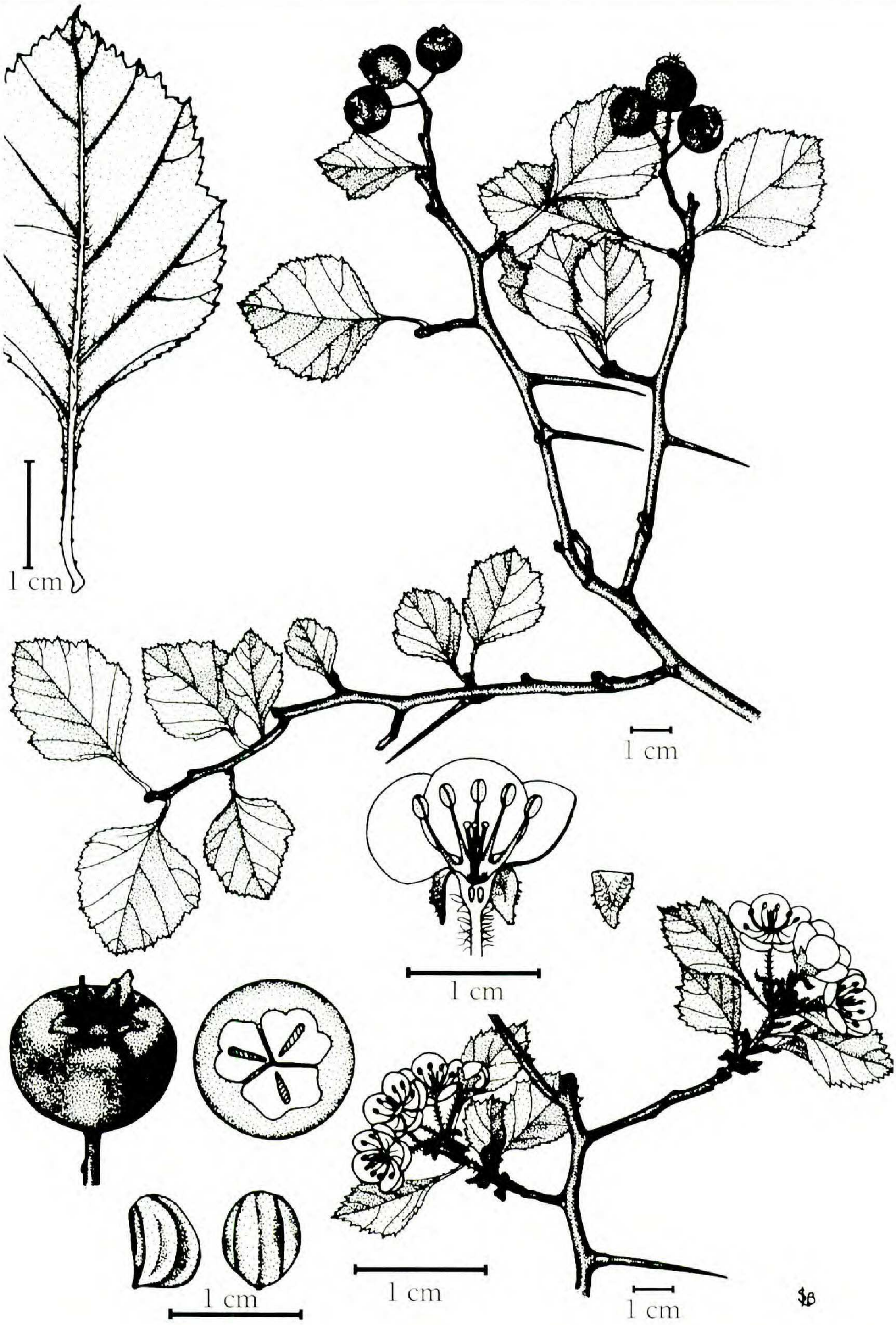

FIG. 1. *Crataegus nananixonii* J.B. Phipps & R.J. O'Kennon. Fruiting specimen, fruit and parts of whole leaf from *J.B. Phipps 6277* (UWO). Flowering specimen and flower parts from *E.S. Nixon 17340* (UWO). S. Laurie-Bourque *del.*

longi, glanduloso-maculati. Inflorescentiae 3–5 florae; pedicellis patento-pubescentibus, bracteolis caducis linearis glandulo-marginibus conspicuis in anthesem praecocem; anthesis in Aprili. Flores 12–15 mm diam.; hypanthium glabrum; lobi calycis 4–5 mm longi, glandulo-marginati, glabri adaxiale; petala ± orbiculares, plus minusve unguiculata; stamina ca. 10, antheris rose-purpureis; carpelli et styla 5. Infructescentiae 1–4 fructae, pedicellis tenuiter patento-pubescentibus. Fructus ca. 1 cm diam., orbiculares, cupreo-rubri, in maturitate glabri, reliquiis calycis adsentibus vel non in ore leviter elevato; pyrena 5.

Shrub, 1–2.5 m tall, quite intricately branched; thorns 1–3 cm long, fine, straight to slightly recurved, dark dull grey. Leaves deciduous, petiolate; leaf-blades 1.5–3.5 cm long, rhomb-ovate, extremely shallowly lobed or unlobed, margins somewhat irregularly serrate, thinly scabrous-hairy adaxially when young, glabrous abaxially, at maturity almost entirely glabrous except for some pubescence on the veins abaxially, and with gland-dots in some of the teeth especially proximally, with about 3 pairs of secondary veins; petioles 5–15 mm long, gland-dotted. Inflorescence 3–5 flowered, branches with spreading pubescence, caducous linear gland-margined bracteoles conspicuous in early anthesis; anthesis April. Flowers 12–15 mm diam; hypanthium glabrous; calyx lobes 4–5 mm long, gland-margined, glabrous abaxially; petals ± orbicular with slight claw; stamens about 10, anthers rose-purple in color; carpels and styles 3–5. Infructescences 1–4 fruited; pedicels with thin spreading pubescence. Fruits 1 cm diameter, ± orbicular, coppery red when ripe, glabrous, calyx remnants present or not on a slightly elevated rim; pyrenes 3–5.

Additional specimens examined: TEXAS: **Nacogdoches Co.**: ca 1 mi N of jct. of FM 1087 & Co. Rd. 153 on 153, occasional, regenerating on a clearcut area, 1.9 m tall, white flowers, anthers rose-purple, 14 Apr 1989, *E.S. Nixon 17334* (UWO); ca. 1 mi N of jct. of FM 1087 & Co. Rd. 153 on 153, regenerating on a clearcut area, occasional, 1.8 m tall, white flowers, anthers rose-purple, 14 Apr 1989, *E.S. Nixon 17336* (UWO); ca. 1 mi N of jct. of FM 1087 & Co. Rd. 153 on 153, regenerating on a clearcut area, occasional, 1.4 m tall, white flowers, anthers rose-purple, 14 Apr 1989, *E.S. Nixon 17339* (UWO); ca. 1 mi N of jct. of FM 1087 & Co. Rd. 153 on 153, regenerating on a clearcut area, occasional, 2 m tall, white flowers, anthers rose-purple, 14 Apr 1989, *E.S. Nixon 17340* (UWO); ca. 1 mi N of jct. of FM 1087 & Co. Rd. 153 on 153, regenerating on a clearcut area, occasional, 1 m tall, white flowers, anthers rose-purple, 14 Apr 1989, *E.S. Nixon 17342* (UWO); ca. 1 mi N of jct. of FM 1087 & Co. Rd. 153 on 153, regenerating on a clearcut area, occasional, 1.5 m tall, white flowers, anthers rose-purple, 14 Apr 1989, *E.S. Nixon 17343* (UWO); ca. 1 mi N of jct. of FM 1087 & Co. Rd. 153 on 153, regenerating on a clearcut area, occasional, 1.2 m tall, white flowers, anthers rose-purple, 14 Apr 1989, *E.S. Nixon 17344* (UWO); 1.3 mi W of jct. of FM 1087 & Co. Rd. 153 on 1087, dry upland, post oak, shortleaf pine & sandjack oak, 1.8 m tall, white flowers anthers rose-purple, 19 Apr 1989, *E.S. Nixon 17321* (UWO); 1.3 mi W of jct. of FM 1087 & Co. Rd. 153 on 1087, dry upland, post oak, shortleaf pine & sandjack oak, 2.1 m tall, white flowers, anthers rose-purple, 19 Apr 1989, *E.S. Nixon 17322* (UWO); 1.3 mi W of jct. of FM 1087 & Co. Rd. 153 on 1087, dry upland, post oak, shortleaf pine & sandjack oak, 2.1 m tall, white flowers, anthers rose-purple, 19 Apr 1989, *E.S. Nixon 17323* (UWO); 1.3 mi W of jct. of FM 1087 & Co. Rd. 153 on 1087, dry upland, post oak, shortleaf pine & sandjack oak, 2.4 m

tall, white flowers, anthers rose-purple, 19 Apr 1989, *E.S. Nixon 17324* (UWO); 1.3 mi W of jct. of FM 1087 & Co. Rd. 153 on 1087, dry upland, post oak, shortleaf pine & sandjack oak, 2.1 m tall, white flowers, anthers rose-purple, 19 Apr 1989, *E.S. Nixon 17325* (UWO); 1.3 mi W of jct. of FM 1087 & Co. Rd. 153 on 1087, dry upland, post oak, shortleaf pine & sandjack oak, 2.1 m tall, white flowers, anthers rose-purple, 19 Apr 1989, *E.S. Nixon 17326* (UWO); 1.3 mi W of jct. of FM 1087 & Co. Rd. 153 on 1087, dry upland, post oak, shortleaf pine & sandjack oak, 2.4 m tall, white flowers, anthers rose-purple, 19 Apr 1989, *E.S. Nixon 17327* (UWO); 1.3 mi W of jct. of FM 1087 & Co. Rd. 153 on 1087, dry upland, post oak, shortleaf pine & sandjack oak, 2.3 m tall, white flowers, anthers rose-purple, 19 Apr 1989, *E.S. Nixon 17328* (UWO); right-hand side (northwards) of Co. Rd. 153, several miles W of Garrison on FM 1087, just N of scout camp, 31°52'N 94°37'W, 500' a.s.l., extreme sandy soil, sparse scrub of dwarf oak, 1 m bush with clusters of ruddy fruit, 18 Oct 1988, *J.B. Phipps 6277* (UWO); Hwy 1087, 3.7 mi E of Hwy 250, N of Nacogdoches, sandy forest, 13 Apr 1993, *R.J. O'Kennon 11239* (BRIT, UWO).

This distinctive and attractive species is restricted to open sandy scrubland of oak, in Nacogdoches Co., Texas, where it is locally common and we are naming it for Elray S. Nixon, formerly of Stephen F. Austin State University, Nacogdoches, who provided J.B. Phipps with a quantity of flowering material and directed him to its site in September 1988. The first part of the root "nana" recognizes the dwarf stature of the plant.

At first sight, *Crataegus nananixonii* resembles *C. uniflora* Muenchh. of series *Parvifoliae* (Loud.) Rehder, but this is primarily due to its small habit, leaves, flowers, and fruits and few-flowered inflorescences. Detailed characteristics however, are more similar to those of series *Intricatae* (Loud.) Rehder with which *C. nananixonii* shares a thorny nature, rhomb-elliptic leaf shape, glandular leaf-bases and petioles, abundant caducous glandular bracteoles and ruddy fruit with a small collar. Also, the unspecialised calyx lobe of *C. nananixonii* excludes this plant from series *Parvifoliae*. There is, however, a form of *Crataegus uniflora* superficially similar to *C. nananixonii* with rhombic-obtrullate rather than elliptic-obtuse leaves more typical of the species that is widely scattered across the southern states. This has been recorded for Texas on sandhills near Tyler in Smith Co. and also has several flowers to the inflorescence, like *C. nananixonii*, a feature however, not rare in true *C. uniflora*.

The possibility that *Crataegus nananixonii* was in reality a highly dwarfed form of a generally larger species of series *Intricatae* therefore needed to be addressed in some detail and for this purpose we considered those species listed in Vines (1960), i.e. all members of the series occurring west of the Mississippi. *Crataegus intricata*, *C. neobushii*, *C. buckleyi*, *C. rubella*, *C. padifolia* and *C. pagensis* may be rejected immediately on account of their glabrous inflorescences and young foliage since this is a generally reliable character at the species level in North American *Crataegus* taxonomy. Among the species with pubescent inflorescence and foliage all are much too large but

need to be compared, nevertheless. Of those with some substantive similarity to *C. nananixonii*, *C. harveyana* and *C. ouachitensis* have deep-pink, rose purple or rose-colored ('red' in Vines' key) anthers but 20 stamens while *C. biltmoreana* has 10 stamens but cream-colored anthers. Stamen number and anther color are, of course, two generally good taxonomic characters at the species level in *Crataegus* and have been considered so by Sargent, Palmer, Kruschke and J.B.Phipps, among others. Indeed, Kruschke (1965) took an absolutist stance on the stamen number issue declaring the impossibility of 10 and 20-stamen entities belonging to the same species. In examining section *Douglasii* (black-fruited hawthorns) Dickinson et al. (1996) have shown that 20-stamen forms are self-incompatible, often diploid (and presumably always sexual) while 10-stamen forms are self-compatible, often not diploid (and may be apomictic), thus providing an explanation for Kruschke's viewpoint. My own (JBP) opinion, however, is that the distinction is not necessarily that rigid and that this could be in part due to the stage of evolutionary divergence reached at a particular point in time. The point to note, however, is that stamen number and anther colour are strong characters and that in the case of *C. nananixonii* they support its specific status as a rare local edaphic Texan (for the time being) endemic rather than as a dwarfed form of some other species in series Intricatae.

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